Thematic Summary of Comments

IPM Act and Regulations: Intentions Paper Responses

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1. Background Information and Responses Received

Background Information

The Ministry of Water, Land and Air Protection is in the final stages of drafting regulations for the *Integrated Pest Management (IPM) Act* which replaced the *Pesticide Control Act*, and was passed in the British Columbia Legislature in October 2003.

This report provides a thematic summary of comments received as part of the consultation process for proposed regulations for the *IPM Act*. The report has been prepared by C. Rankin & Associates for the ministry.

An *Intentions Paper* (including an Overview, detailed Questions and Answers and a Response Form) was prepared by the ministry in September 2004 to provide information about the ministry's intentions in drafting regulations for the *IPM Act*. This information was posted on the ministry web page, as well as circulated directly to individual First Nations bands and Tribal Councils throughout the province. Information concerning the process and means to access the *Intentions Paper* was also distributed by e-mail to all respondents who had previously commented on the legislative reforms, and through the ministry's "IMP eLink" listserve. Respondents were invited to submit comments regarding the ministry's intentions by fax, mail or electronic means.

A provincial workshop to review and solicit comment on the ministry's intentions, was held in Vancouver on October 19, 2004, with invited participants representing a broad range of stakeholders with an interest in IPM legislation. Participant comments from this workshop are incorporated in this summary report.

Further information concerning the review process (including links to the *IPM Act*, the Overview and Questions and Answers sections of the *Intentions Paper* and documents from previous rounds of consultation) can be obtained by following the links from the main Ministry web page, or at: http://wlapwww.gov.bc.ca/epd/epdpa/ipmp/pestact/index.html .

Responses Received

Although a limited timeframe was available for comment (less than one month from distribution of the *Intentions Paper*), over 150 response forms and signed submissions were received by the ministry. These included:

- Over one hundred responses received by electronic means through the ministry's website; and
- Fourty-five signed submissions (most received electronically) – this figure includes submissions from provincial and regional associations (e.g., BC Medical Association, BC Chamber of Commerce, Integrated Vegetation Management Association, West Coast Environmental Law, BC Landscape & Nursery Association), First Nations organizations (e.g., Kwakiutl District Council) and corporations (e.g., TimberWest, BC Transmission Corporation, Dow AgroSciences).

This report includes a summary of major themes and issues raised by respondents, as well as detailed comments to the fullest extent possible (without attribution to specific respondents). Direct quotes from submissions are included within quotation marks. Square brackets are used to provide context or describe the intent associated with excerpted quotes. The full content of all submissions has also been compiled and transmitted to the ministry for review and consideration in the final drafting of *IPM Act* regulations.

2. Summary of Comments

2.1. Approach to Regulating IPM and Pesticide Use

Risk-Based Regulation and Equitable Application of Requirements

Many respondents supported the ministry's stated principle of establishing a regulatory approach that establishes regulatory requirements based on degree of risk to human health and the environment. Several encouraged the ministry to keep the goal of making restrictions proportional to risk in mind when finalizing the regulations (e.g., "science should be the basis of the standards, not politics or interest group appeasement"). Several respondents suggested more specific definitions for key terms in the regulations "in order for the new legislation to be transparent… [for example] 'standards' (what will they be based on, and who will decide), 'high risk' versus 'low risk', and 'public land'."

Respondents also commented that the present system involves "too much process" and that they would welcome an approach that focuses on "outcomes and objectives." While many expressed support for the approach outlined in the *Intentions Paper*, some respondents felt that the proposed regulations remain overly prescriptive in nature and that "a more results oriented approach to pest and weed management is required." Respondents also expressed concern that detailed guidelines are not appropriate and that "any reference to guidelines should be dropped in a results based industry."

Many respondents also expressed a desire for an "equitable approach [to the regulation of pesticide use] on private land that addresses the protection of environmental values regardless of land use." It was commonly stated that private forest land owners must apply higher standards and incur higher costs than other private landowners such as domestic pesticide users, farmers and golf course managers.

Definition and Use of Integrated Pest Management (IPM)

Several respondents commented that the definition of IPM contained in the Act and regulations is ambiguous and does not contain sufficient direction to prospective pesticide users "to incorporate non-pesticide components of IPM into their pest management activities." These respondents commonly submitted that "IPM for BC should be aimed at progressively reducing overall pesticide use…and the human and environmental health risks posed by these substances." One respondent commented that: "it is my impression the legislation and regulation as proposed does not constitute IPM and certainly not best practices with respect to IPM." Respondents recommended a number of elements for inclusion in the regulations that could "strengthen" IPM provisions, including:

- A definition of IPM and directions on its implementation that gives priority to the use of alternatives to pesticides;
- Establishing standards that will direct users not to use pesticides where alternatives provide similar benefits, or where pesticides will not achieve a minimal level of effectiveness;
- Ensuring that the reach of the legislation governs all pesticide use that may threaten human and/or ecosystem health;
- Identifying clear threshold values (beyond label directions) that can be used to determine when negative environmental impacts can occur; and
- Implementing education and public awareness programs to increase vendor, user and public understanding of IPM.

Respondents also commented that the IPM process described by the ministry does not make reference to "economics" or "the cost-benefit of competing strategies" as a consideration for determining pest suppression strategies, pointing out that some methods of manual vegetation control require "repeated treatments to attain any level of success and these would be too costly for anyone to consider." Conversely, another respondent commented that: "in my experience, cost has been used to discount manual brushing as a practical alternative to the aerial spraying of herbicides with regards to silviculture/forestry…[Hence] what role does cost play in evaluating whether an action is considered practical in 'consideration of practical alternatives to pesticides'?"

Several respondents also felt that the proposed regulatory system does not encourage adoption of new products that could significantly reduce risks to human health and the environment.

2.2. Administration of the Act: Regulatory and Administrative Powers, Provisions for Appeal and Role of the IPM Committee

Several respondents commented that it appears that the Administrator has "too much power" under the *IPM Act*. Some expressed a concern that the powers given to the Administrator could lead to inequitable differences in interpretation and application of the regulations across the province. One respondent suggested that, "as [the Administrator] appears to have quite significant responsibilities, we believe that it is important that the scientific criteria and principles that will be used to make these decisions need to be clearly described in the Act."

Many respondents noted the limited or unclear provisions for appeal of decisions or actions taken under the proposed regulations. One respondent, for example, commented that: "we strongly oppose the limitations placed on members of the public and public-interest organizations to appeal pesticide management plan registration. At the very least, the ability to ask the Administrator to arbitrate the adequacy of consultation is necessary. Alternatively, an appeal should be available after mandatory negotiations or mediation occurs between the proponents and those who consider themselves affected."

Several respondents recommended that "the power to make regulations with respect to municipal by-laws should lie with the Minister rather than the Lieutenant Governor-in-Council…[and] should include a provision to restrict municipalities and regional districts for making by-laws in relation to the application of pesticides for the management of pests that impact any of the industrial or commercial uses regulated by the Act." One respondent commented that: "the Lieutenant Governor in Council should be responsible for reclassifying pesticides, in consultation with the public, rather than the Administrator."

A number of respondents commented on the role of Integrated Pest Management (IPM) Committee in advising the Administrator. The current Pesticide Control Committee is composed of members from government agencies who have regulatory authority related to management of pesticide use in the province (i.e., provincial and federal ministries or agencies). Respondents suggested that "an open, more transparent committee would be more credible" and that the committee's mandate and terms of reference, membership and terms of appointment, and meeting schedules should be available on the ministry's website and outlined to the public. Some participants at the provincial workshop on the *Intentions Paper* suggested that membership on the committee should be broadened to include industry and/or worker representatives (with practical field experience) and/or broader interest or sector representatives (e.g., First Nations, public interests).

Respondents also suggested that the provincial ministry (WLAP) "should discontinue development of product specific standards…as the Federal government (Health Canada Pest Management Regulatory Agency) reviews all products (including health and environmental fate/toxicological risk assessment) for

use in all provinces including British Columbia." One example of this "duplicative effort" is the proposed regulation of triclopyr and picloram outlined in the *Intentions Paper* – "specific application standards for these products are already present in the form of generalized provincial standards and as outlined on the product label – we request that BC WLAP immediately remove all reference to picloram and triclopyr from the draft regulations."

2.3. IPM Legislation Development and Consultation Process

Many respondents complimented the ministry on the consultation process, and efforts to explain new legislative provisions and respond to comments at each stage of the process. Some specific comments or requests were also made regarding the consultation process, including:

- Requests that the ministry provide a copy of the draft regulations to stakeholders for comment;
- Comment that First Nations have only been directly contacted during the "next to last step" of the process, and that to avoid unreasonable infringement of aboriginal rights and title the ministry "must scrap this *IPM Act* and start all over and include the individual First nations over the land where they are sovereign";
- Concern that the ministry is not concurrently implementing all elements of the new regulations, or setting out a clear timetable for establishing all of the provisions (e.g., with respect to qualified monitors, licensee insurance requirements and administrative penalties) contained in the proposed regulatory regime; and
- Comment that "the consumer group" has not been sufficiently involved, particularly in the final stages of the consultation process.

2.4. Pesticide Classification System and Determinations for Exempted and Permit-Restricted Products

Many respondents recommended that the regulations include a "clear and transparent" process by which the ministry determines Permit Restricted and Exempted products. Some respondents recommended basing Exempted [and Permit-Restricted] products on "the toxicity of and risks posed by specific products." Several commented that the current process for including or removing a product from the Exemption (or Permit-Restricted) listing is time-consuming and uncertain. Respondents suggested a "scientific review process…based on generally accepted scientific risk assessments and protocols" with a timeframe (e.g., once a year) for changes to the lists and a clear description of the information required for consideration on the list – with the rationale that: "it is important that the principles on which pesticides will be added to or deleted from the list should be in the Act itself."

A number of respondents also suggested that the ministry follow categories established under federal legislation, rather than further assessing or classifying products. "All Commercial and Domestic class products [need to] be treated 'on a consistent, risk-oriented, scientific basis' and in a manner consistent with the federal regulatory approach." Some respondents suggested that: "federal domestic class products should all be considered exempt and added to the listing." Other respondents supported a more independent approach to classification, for example: "we believe that the current approach suggested by the federal government is flawed – the proposed classification system is based on laboratory toxicological results which may well be outdated, rather than on such measures as persistence in nature, travel through the environment, and biomagnification, to name but a few more currently accepted measures – perhaps it would not be best to harmonise with an inherently flawed classification system."

One respondent called for the IPM regulations to explicitly prohibit the sale of combined fertiliser/pesticide products, noting that: "the use of these products is a major contributor to unnecessary use of pesticides and unnecessary human exposure to pesticides in British Columbia… [and that] widespread use of combined fertiliser/pesticide products is incompatible with Integrated Pest Management, the preferred approach to pest control."

Submissions included recommendations from one or more respondents that one or more of the following products be added to the proposed list for Exempted products:

- Domestic use products based on the active ingredient 2-4D;
- Plantskydd Deer Repellent;
- Spinosad (biologically derived insect control product with organic designation);
- Copper boron rods (e.g., Cobra Rods);
- Boron rods (domestic and commercial);
- Wood preservative bandage products cobra wrap (copper napthenate) and cop-r-plastic (copper napthenate and sodium fluoride);
- Fatty acids for commercial application;
- *Chondostureum purpureum* fungus ("a naturally occurring fungus that is effective at controlling deciduous tree species…submitted [for registration] to the PMRA and… soon to be available for use in Canada"); and
- Chontrol (developed by MycoLogic Inc., University of Victoria Biology Department);

Some respondents recommended additions to Permit-Restricted category, and/or removal of products from the proposed list of Exempted products, for example:

- Extend Permit-Restricted category to "include all known or suspected carcinogens, endocrine distruptors, development and reproductive toxins, and those with severe acute toxicity;"
- "Recommend removing nerve toxins from the Exempted products list"; and
- "I have had intimate experience with permethrins and d-phenothrins [Proposed Exemped products 30, 32, 36 and 37] as a flight attendant and health and safety representative…[and] have received many injury reports relating to Callington's Top of Descent spray and the residual permethrin sprays that are sprayed in a non-ventilated aircraft above all passengers and crew upon arrival in India, Australia and other locations…MSDS information on all of these substances do NOT paint the complete picture."

Additional comments or questions concerning Exempted products included:

- "What is the difference between 'insecticides and miticides registered for application to domestic animals' (#22) and 'pesticides registered for topical application to domestic animals' (#32)?";
- "Allethrin, for example, is a suspected endocrine disruptor, and is rated as 'moderately hazardous' by the World Health Organization and 'slightly toxic' by the US EPA. It is considered highly toxic to fish and zooplankton..the American equivalent for N-octyl bicyclohepene dicarboximide, another substance new to the Exempt list is considered a possible carcinogen…it is also considered 'very highly toxic' for average acute toxicity for fish…phenothrin…is also a suspected endocrine disruptor…piperonyl butoxide is considered to have moderate acute toxicity, possible carcinogen, potential ground water contaminant, mortality observed in amphibians, annelida, crustaceans,

zooplankton and fish, highly toxic to amphibians… – the inclusion of these pesticides in the proposed exempted list raises questions about the adequacy of the method used to place them there;"

- "Another problem with the exempted list is that it exempts entire categories of pesticides, such as pesticides in aerosol containers, slimicides and wood preservatives – this does not adequately address the risk posed by specific products that fall into these categories as some products [may] be safe, and some not";
- "Some of the individual pesticides on this list are amalgamated into broad groups that could have significantly varied potential to cause damage to the environment or human health – for example, the effects of 'insect pheromones' can range from a very localized or specific effect to a much more extensive response that could affect an entire ecosystem – again, it is important that the methods by which individual pesticides or groups of pesticides will be added to this list be clarified";
- "Why are commercial bait stations not exempt [as they are often exactly the same as domestic products]?";
- "Hard surface disinfectants now have DIN numbers, not PCP numbers – do they even fit in the new regulations?"; and
- "Does 'plant growth regulators' [#34] refer to 2-4D? If so…it doesn't belong on this list [and if not, the term needs clarification]".

2.5. Fees

Many respondents commented that the proposed fee schedules are too high and "may well force smaller but very good operators out of the business." Some respondents suggested that the "high" fees (e.g., the proposed permit application fee of $1000) are intended by the ministry to "act as a submission deterrent." Suggestions to redress this issue included setting a maximum fee for any one individual or company (to address costs of multiple fees required under the *IPM Act* and regulations), and setting service licence fees based on amount of chemicals used (to more fairly distinguish between "one-man" and bigger companies).

Several respondents also recommended that: "the regulations should confirm that donations of pesticides [e.g., donations of herbicides to regional districts and ranchers to assist with noxious weed control] are exempted from the licence fee requirements for pesticides."

2.6. Purview of the *IPM Act*

Several submissions from First Nations bands and councils concerning the proposed regulations commented that the British Columbia government does not have clear and unfettered jurisdiction over "Crown" land or "public land" as defined in the *Intentions Paper*. Respondents pointed to BC and federal Supreme Court decisions regarding First Nations who have no Treaty with Canada and aboriginal rights and title to traditional territories and claimed land.

A number of respondents suggested that ranching (i.e., range and pasture) on either private or leased Crown land should be included in the regulations' definition of "private land" (i.e., similar to the definition contained in the *Pesticide Control Act*). Respondents pointed to inconsistencies in the *Intentions Paper* with respect to definitions of private and public land (e.g., between notes on pg. 8 and pg. 17 of the Questions & Answers section), noting that "treating ranchers like a large forestry or utility company with substantially more financial and human resources is not appropriate…range use plans and

range stewardship plans include the right to control noxious or invasive weeds – this should not have to be approved by BC WLAP under permit or PMP."

Many respondents commented on the fact that agricultural activities involving IPM and use of pesticides were not within the purview of the *IPM Act* and regulations. Several suggested that a fair approach addressing the rights and responsibilities of landowners and/or managers in relation to protection of human health and the environment is needed, with clear distinctions (as well as delineation of common responsibilities) made between private and public lands. Some respondents recommended, for example, that the "reach of the legislative scheme [should] govern all pesticide use that may threaten human and/or ecosystem health," while others suggested that requirements for private land forest management activities and ranchers controlling invasive plants (such as notification of nearby neighbours) were more onerous than requirements for the agricultural sector.

A number of respondents submitted that "the regulations should include a provision to restrict municipalities and regional districts from making by-laws in relation to the application of pesticides on land used for railways…we urge you in the strongest possible terms to ensure that the Railways are not subject to municipal pesticide by-laws – this will ensure that the Railways are not subject to numerous, different and potentially contradictory rules and regulations."

One respondent noted that that *IPM Act* and *Intentions Paper* make no explicit mention of golf courses and: "we sometimes wonder what we are classified as – do we fall under the Act as a commercial user? As an agricultural component, as we do grow a crop (turfgrass)? Where do we stand as an industry and therefore what are the guidelines we must follow? There is also some confusion between golf courses situated on public, semi-private and private land…our association [the BC Golf Superintendents Association] would like to see some clarification on this issue.""

2.7. Licence, Certification and Permit Requirements

Pesticide Dispenser Requirements

Several respondents, and two provincial associations (the BC Landscape & Nursery Association and the BC Medical Association) expressed concern about the provisions guiding the sale of pesticides contained in the *Intentions Paper*. Respondents commonly expressed "strong objection" or "astonishment and dismay" regarding the ministry's intention in this regard. Respondents advocated a continuation or upgrading of existing requirements for dispensers to have direct communication with potential purchasers of pesticides – a "pharmacy model" – emphasizing that this provides a critical opportunity for education of consumers on IPM, appropriate choice of products and safe use of pesticides: "similar to a pharmacist reviewing a prescription with a patient, the system should involve the salesperson ensuring that the correct pesticide is bought for the customer's problem…suggest[ing] less toxic of IPM remedies, as well as reviewing the safety [directions] on the label." One respondent noted that: "introducing a pharmacy model would clearly resonate well with the many British Columbia municipalities that are waivering between imposing pesticide bans or committing to an education model."

No respondents commented in support of the proposed approach of vendors being required to post IPM and pesticide use information, and signage indicating the availability of trained staff.

Certification Requirements

Respondents who commented on this topic supported certification of pesticide applicators and dispensers, with many also providing suggestions to the ministry on modifications to certification requirements.

Recommendations made by respondents included:

- Setting a lower first time certification fee (i.e., $25 instead of the proposed $90) to encourage individuals to become certified;
- Requiring certification training to include (or emphasize) IPM, with "dispensers…trained to encourage pesticide alternatives, and…required to provide advice about IPM to purchasers"; and
- Requiring all pesticide applicators of Permit-Restricted pesticides to be certified (rather than having a certified individual able to supervise up to four other applicators).

Notification Requirements for Use of Pesticides in or around Schools and Care Facilities, Multiple Residences, and Common and Outdoor Areas

Respondents who commented on this topic, while generally supporting the ministry's expressed intentions, expressed concerns about their practical application, or a desire to "strengthen" notification provisions. Several respondents provided specific suggestions in this regard:

- "Bare land strata developments should be included in notification requirements (as well as other pesticide use standards and requirements) – many such developments have water and septic/sewage systems and riparian habitats";
- "Why not keep notification requirements consistent? Require [48 hour notification for] outdoor public use areas [the same time as is required for other areas]";
- "Why exempt herbicide use on weeds in sidewalks from notification requirements when the lawn beside the sidewalk (where people may not walk as often) is not exempt?";
- "Any PMP and IPM in light of recent medical findings should include controls for: no exposure risk to children and pregnancies; and no exposure risk to water bodies";
- "Pesticides are not required to say on their labels if they contain peanut products or bittering agents. I don't see how you can base any notification requirements on information that is not readily available to the applicator";
- "If a Medical Health Officer is to have the power to reduce notification requirements, the regulations must define under what circumstances this power can be used…this should be limited to circumstances where pesticide use is required to avoid a public health hazard";
- "For schools and community care facilities, parents of children [as well as principals and administrators] should have to be notified (Community Care Facility regulations are currently under review – consider appropriate inclusion of notification provisions in these regulations.)" – one respondent also recommended that permits should be required for uses near school and childcare facilities;
- "We also feel that it is important for BC citizens to be advised when they will be exposed to pesticides that are currently restricted or not in use in BC – this would include such instances as fumigants used on container ships, and pesticide exposure on aircraft and cruise ships"; and
- "The ministry should consider including notification requirements for offices [and other common spaces such as drinking and eating establishments] in regulations."

Record Keeping and Reporting

Several respondents recommended that pesticide dispensers be required to report sales of Exempt and Domestic products, as well as other pesticides, as described in the *Intentions Paper*. Respondents also suggested the recording and publication of pesticide use information by sector and user. A number of respondents also expressed concern that record keeping and reporting requirements for pesticide users may be onerous or involve a duplication of effort and/or figures (e.g., between applicators and licensees). Several respondents commented on the difficulty of reporting on use of IPM, for example: "IPM is a management technique not a tactic and therefore can't be quantified, *per se* – an annual summary of the use of IPM would simply be a re-iteration of the management plan outlined in the PMP and would be of little value." A number of respondents also recommended that the ministry provide clear and accessible means for submission and publication of pesticide use information (e.g., using the ministry website).

Scale and Nature of Pesticide Use Requiring a Licence (rather than a PMP Registration)

A number of respondents recommended increasing the "cut-off line" for pesticide applications involving control of invasive plants (noxious weeds) to operate under a licence to "less than 40 or 50 ha." (from less than 20 ha). One submission proposed that pesticide applications that pose a specific threat to humans (such as parks, schools and outdoor areas in urban settings) – even if involving an area of less than 20 ha should require preparation of a PMP (rather than operate under a licence).

Pesticide Uses Requiring a Permit

As well as expressing concern about the "lack of transparency/process" involved in identifying products and uses requiring permits, a number of respondents commented that the proposed permit application fee ($1000) is unnecessarily high and the current permit approval process is too slow. One respondent recommended that "a permit should not be required for the use of a pesticide assigned to the exempted, commercial class – as a last resort, if a permit is required, it should be issued (like PMPs) for a five year timeframe."

One respondent noted that "in discussions prior to this *Intentions Paper*, it was indicated that predator control would require a permit – this is no longer included…and should once again be added…predator control is a major undertaking, targeting higher organisms and potentially disrupting food-chains – as such, it should be most strictly controlled." The respondent also recommended that permits be required "for uses that pose a special threat to human health (for example, in schools, playgrounds, hospitals)… [and] for aerial application for agricultural purposes." The respondent also recommended more stringent consultation, notification and application requirements for pesticides used under permit "given the high toxicity…and public's interest in protecting themselves from these substances."

2.8. Pest Management Plans (PMPs)

Scope and Nature of Pest Management Plans

Respondents outlined a wide range of questions, comments and suggestions related to Pest Management Plans and the PMP registration process. These included:

- A concern that the PMP process as described in the *Intentions Paper* is not sufficiently flexible to allow introduction of new technology, even if this technology reduces potential harm to human health and the environment;
- Concern regarding the potential for PMP requirements to duplicate, or further restrict, handling and use directions set out under federal labelling requirements for pesticides (without "appropriate and sufficient" scientific assessment);
- The need for a PMP to retain some flexibility to enable the PMP holder to respond to changes in conditions over the life of the PMP, for example: "the system should be self-capping [not limited to a maximum 10% area increase in an NIT] because all treatments are ostensibly done based on treatment thresholds";
- "We are unsure what is meant by the term 'deviation' – we submit that small deviations related to PMP requirements that are in compliance with federally approved label instructions and registered use patterns should not require permit approval – these deviations ought to be submitted to WLAP via a notification letter";
- A suggestion to limit PMPs to a set maximum allowable area -- to "allow for effective public comment and consultation…[and the] level of detail that is necessary to address local features and circumstances …[e.g.,] specific indications of where pesticides will be used";
- A recommendation that "standards [for the protection of human health and the environment] must apply not only to pesticide use, but to the actual preparation of a Pest Management Plan. Because there will no longer be a government approval process associated with the PMP, a specific standard must be created which mandates that a PMP be prepared with a sufficient level of detail, and include a sufficient level of prioritization of pesticide alternatives that it clearly demonstrates no unreasonable adverse effect would occur should the plan be followed";
- An "object[ion] to the lack of government approval of pesticide management plans – at the very least, government approval should be required for proponents who have a record of non-compliance or who have never before prepared a PMP." Another respondent commented that "we believe that it would be much more useful for these PMPs to be reviewed by a knowledgeable individual in the government – following this review, the PMPs should be available for review by the public in a centralized location such as the Ministry of Water, Land and Air Protection's website – in this way, the applicators will be accountable to the people of BC";
- Concern regarding record keeping and reporting requirements for PMP holders that may "require a tremendous amount of administrative time and effort…[while being] once again prescriptive in nature and not focused on achieving results"; and
- Recommendations for more specific requirements to consider and apply IPM – "for example, specific thresholds to be used in deciding whether a pesticide treatment is warranted…[with] thresholds set by government to ensure a consistent approach to pest management… [and] treatment options and rationale [for] selection of methods."

Consultation Requirements

This element of Pest Management Plans generated considerable comment from respondents. Many requested additional clarity from the ministry around consultation requirements (i.e., the actions that would be needed for consultation to be considered appropriate and sufficient). Many respondents also pointed to a distinction between constitutional obligations to consult with First Nations about activities that may infringe upon aboriginal rights and title, and soliciting review and comment from the public and other potentially affected or interested parties.

Specific comments concerning consultation included:

- "The breadth and scope of consultation processes should also recognize the risk and size of applications proposed";
- "We believe the public consultation process will become completely unwieldy and ultimately have more to do with politics than science. The MWLAP should show both courage and leadership in this initiative by creating standard operating procedures that reflect the best information available rather than hiding behind process";
- "Consultation is important and valuable but I am keen to understand what the term 'significantly' impacted by pesticide use activities' actually means…[the term] should be explicitly defined to provide adequate guidance to proponents on the extent of consultation that should occur";
- "The term 'significantly impacted' should be broadly defined so as not to exclude individuals or organizations that feel they may be significantly impacts";
- "I would very much like to see MWLAP's First Nations consultation policy – a search of your web-site failed to reveal a copy";
- "A review and comment period with the public and First Nations should only be required in the event of 'major amendments' to the Regulations or Standards – in other instances, notification should be considered sufficient";
- "What is the role of government agencies, such as Environment Canada, in the consultation process?";
- "The requirement to notify individuals or agencies who have offered direct notification during consultation to finalize the PMP should be removed. This requirement will be a tremendous amount of administrative effort on the part of PMP holders and would appear unnecessary once the PMP has already been registered or approved";
- "The Ministry should review Forest Stewardship Council Regional Standards for recommended consultation principles (Principles 2, 3 and 4: tenure use rights and responsibilities, indigenous peoples' rights, and community and workers' rights) – www.fsc-bc.org";
- "Use of the word 'consultation' in this context must not be confused with the constitutional obligation of the Crown to carry out consultation with First Nations in the event that a government decision may infringe aboriginal rights and/or title – accordingly, [the ministry] should clarify that any consultation required by permit holders under the Regulations is distinct from any constitutional obligation of the Crown to carry out such consultation";
- "We agree that consultation with the public, including First Nations must occur, but suggest that guidelines should be reinforced with regulations concerning the extent to which consultation must take place. Further, this consultation should include accommodation wherever possible and where required to prevent unreasonable adverse effect. A remedy should be available where accommodation has not occurred (perhaps arbitration by the Administrator, or an appeal to the EAB)";

- "[We] believe overall the process is too time consuming and costly. A few special interest groups can effect or stop sound forest management practices"; and
- [The *Intentions Paper*] is not clear on the extent to which concerns raised by those involved in consultations must be accommodated. There should be some obligation on the part of proponents to address human health and environmental concerns to the public. It was indicated at the [provincial stakeholder] workshop that the Administrator will be given the authority to arbitrate the sufficiency of consultation. This should be explicitly stated in the regulations or Act."

Other Comments

Additional comments related to PMPs and the PMP registration process included:

- "The PMP content requirement has redundant information from [federal] label requirements and regulation";
- "While we understand the time and expense that is involved in repetitive EAB appeals, we must emphasize that it is important for there to be some method for interested parties to be able to dispute the safety of PMPs – perhaps this could be arbitrated through [a central office to oversee the new Act] at WLAP";
- "To increase public access to and understanding of PMPs, the public should not be requested to pay a copying charge for a PMP…First Nations should be able to request a copy of a proponent PMP that is free of charge";
- "It should be stated that the original author [of a PMP available for public review] will retain copyright to protect proprietary interests such as treatment thresholds and standard operating procedures";
- "The proponent [should] also send the pesticide use notice to the affected First Nations, or the ministry forward the pesticide use notice to the affected First Nation. This should also take place for an amendment…[and] annual notification of intended pesticide use";
- "[Annual summaries of pesticide use] should be made available through a dedicated WLAP website;"
- "I have some concerns about the format of required record keeping. Is just having the information in current system adequate (such as part of surveys) or would separate specific records need to be kept? …I have some concerns logistically with collecting 'extra' information required for treating vegetation at the time of spray (such as distribution of pest and effect of treatment on pest)";
- "It is not indicated how long the PMP holder must maintain these records – for example, in the forestry context, are PMP holders required to maintain these records past Free Growing Declarations?";
- "[We are] very concerned about the proposed requirement for posting of notification of aerial spraying in remote locations 24 hours in advance of all applications – this would impose significant increased costs of application (i.e., require additional helicopter time prior to spraying) with negligible benefit to public health. Trails and other 'sensitive areas' would have already been identified as part of the process and would not be oversprayed – public use of clearcuts in remote areas is non-existent. [The ministry needs] to more clearly define 'reasonable expectation' of public use";
- "Public notification before pesticide use… signs should only be required at authorized access points… the reference to 'bystander' should also be changed to 'the public'"; and
- "To be clear, the regulations should refer to 'power distribution' as well as 'power transmission' lines."

2.9. Standards for Protection of Human Health and the Environment

Direction Contained within Standards

Many respondents encouraged the ministry to "focus on outcomes and objectives instead of process" and institute a "results oriented approach to pest and weed management." Some respondents expressed concern that many terms outlined in the *Intentions Paper* (such as "appropriate distance" and "appropriate precautions") – intended to protect such elements as water sources, adjacent property owners, wildlife and domestic animals, water bodies and habitat – do not provide sufficient clarity for application, monitoring and enforcement. One respondent commented that "the standards as drafted, are vague prescriptions and do not include results which must be achieved. While results are also difficult to draft in an enforceable manner, both prescription (for prevention) and results (for enforcement) are necessary to achieve effective protection." Another respondent expressed a concern about the lack of explicit requirements for all licensees and PMP holders managing significant areas of land to prepare "a written strategy and detailed site map showing areas excluded from pesticide application for protection of water quality, fish habitat and designated critical wildlife habitat."

Other specific comments included:

- "The standard requiring that no pesticides be sprayed when winds exceed 8 km/hr is an example of the type of direction that is needed in the regulations";
- "[Reference to wind speed] should be limited to foliar applications, as concerns regarding drift due to wind do not apply to other types of applications";
- "[Recording of prevailing meteorological conditions] should only be required for aerial spraying";
- "All licensees and PMP holders…should have the same obligation [as those involved in forest vegetation management] to protect water bides and wet or dry streams, by ensuring a minimum 10m pesticide free zone is maintained along them";
- "These [standards that apply to pesticides used for control of invasive plants] are good standards…[and] should apply more broadly. All pesticide applicators for all uses should be applying only to the target species and should be making efforts to use biological control agents";
- "Marking of [treatment] boundaries and target areas, [as well as] pre-treatment inspection by pilots of pesticide application areas should be required";
- "Application [of wood preservatives] should be carried out in a manner to prevent leaching or other movement of wood preservations into waterways [as well as] preventing disposition of wood preservatives below the high water mark";
- "We need clear threshold values that can be used to know when negative environmental impacts will occur… The toxicity of glyphosate and triclopyr to fish are perfect examples because all these studies are done in closed containment tanks and bear no relationship to real life situations";
- "[The proposed] restriction upon spraying to 30 minutes either side of sunrise and sunset… will place some restrictions on spraying operations in the north of the Province where daylight hours can extend long after sundown or before sunup, and in the case of aerial applications, the helicopters are actually governed by transport regulations in relation to flying times";
- "The requirement to maintain records of where signs are posted relating to pesticide treatments should be deleted – this record keeping will require more administrative time and effort on the part of PMP holders and, once again is prescriptive in nature and not focussed on achieving results"; and

- "The requirement that mosquito larvicides not be used in permanent fish-bearing waters or in waters that have permanent direct surface water connections with fish-bearing waters should be extended to prevent mosquito larvicide application in waters with direct groundwater connections to fish-bearing waters…A definition of 'bird nesting or staging areas' should be provided [and] minimum distances to be maintained around them… Documentation of the efficacy of larvicides should be shared with other mosquito controllers so that the most effective methods using the least amount of toxic material can be determined."

Standards for Specific Products

Several respondents commented that while "general provincial guidelines are appropriate for various use areas," provincial product specific standards for protection of human health and the environment are not necessary as they addressed in detail on the labelling directions for pesticide products, as mandated under federal legislation. Specifically, the ministry was requested to "remove reference to picloram and triclopyr in the proposed regulation [as these] products have been used safely in British Columbia… Aerial application of triclopyr [should] stay within certain geographical boundaries but this should not be under regulation, or at minimum it should be outlined correctly within regulation and allowable under PMPs." One respondent, however, supported the requirement that picloram not be used in coastal areas "and given picloram's toxicity to marine life, [recommended] that it be more stringently regulated, perhaps as a permit restricted pesticide."

Other respondents suggested: "that standards should be developed for each and every pesticide that will be governed by a PMP to supplement label directions and ensure that they are used in a manner that will protect the unique features of the province specifically." One respondent referred to a report by the Environment and Sustainable Development Commissioner in 2003, concerning a 2002 PEI case in which water wells were contaminated by pesticides, that "highlighted the inadequacy of label directions from an enforcement perspective…A precautionary approach demands that clear standards supplement label directions."

Note that a number of comments regarding specific products are included in section 2.3 (Pesticide Classification System and Determinations for Exempted and Permit-Restricted Products) and many comments concerning application of glyphosate are addressed in the forest vegetation management section below. Additional product-related comments included:

- "Use of fumigant gases are related to provincial licencing requirements or a notice of intention… [and] a Pest Management Plan registration is not necessary";
- MSDS information on [Roundup (glyphosate) and Garlon 4 (triclopyr)] … fail to include the 'inerts' and there have been no environmental studies conducted. Triclopyr was recently listed as one of the seven most dangerous chemicals on a list of banned pesticides in the USA. All of these pesticides have demonstrated high toxicity to fish and there exists many links between them and heightening cancer risks, reproductive side effects, allergic reactions, and serious respiratory damage";
- "[The *Intentions Paper* outlines consultation and notification requirements that must be undertaken] 'before applying a pesticide to an area that is within 150m of an adjacent property…' I believe the distance should be much greater [than 150m] AND the requirements should ALWAYS apply when the pesticide is being applied to land overlying a known aquifer"; and
- "Because questions remain open on the exact impact of Btk and Bti on human health and overall ecosystem health, we are concerned with the absence of any provisions pertaining to the protection of human health and the environment for these micro-organisms."

Standards for Forest Vegetation Management Activities

More than half of the respondents who commented on the *Intentions Paper* are involved in the forest sector and many provided specific comments on the use of IPM and pesticides in forest vegetation management. Respondents commonly expressed their support for "responsible and productive use of approved herbicides" for controlling vegetation, noting that targeted use of herbicides involves "one or two applications over a 45 to 70 year period" and leads to "dramatic increases in coniferous tree growth" Respondents also pointed to regulations in neighbouring jurisdictions: "Alberta has the most streamlined approach with no government approval or government notification requirements and a minimum number of rules; Washington requires no approval for ground-based herbicides and a 30-day approval process for aerial herbicide treatments; [and] Oregon has a 15-day government notification process for aerial and ground based herbicide treatments."

Some respondents expressed concern about the potential for increased herbicide use on forest lands. For example, "vegetation which competes with planted trees is not a 'pest' and does not need to be treated with substances which will harm wildlife and humans… down the watercourse and up the food chain. Competing vegetation that comes up when an opening is created has many valuable ecological functions."

Many comments and recommendations were expressed concerning directions for application of glyphosate, the definition of "water body" and provisions for water protection proposed in the Intentions Paper. Some respondents commented that the Intentions Paper introduced "additional restrictions which were not in place with the previous Legislation" and [an inappropriate effort to] "manage biodiversity through herbicide regulation and not using accepted scientific research."

While numerous respondents proposed alternatives to defining and classifying acceptable pesticide use practices adjacent to water bodies, several recommended that the ministry develop a summary table of "water and riparian zone protection for forestry" and referred to the following set of recommended definitions and "leave distances" for water features:

- Recommended definitions: "*Pesticide Free Zone* (PFZ) – a strip of land adjacent to a water body or stream having a horizontally specified width measured from the high water mark (pesticides may not be directly applied to the PFZ or allowed to reach the PFZ via drift, runoff or leaching), *No Treatment Zone* (NTZ) – a strip of land between a feature or area that requires protection and the treatment area (pesticides are not applied directly to the NTZ), *Water body* – water in a stream, water in a lake, marine or estuarine water, or water in a ditch, *Stream* – a watercourse, including a watercourse that is obscured by overhanging or bridging vegetation or soil mats, that contains water on a perennial or seasonal basis, is scoured by water or contains observable deposits of mineral alluvium, and that: a) has a continuous channel bed that is 100m or more in length; or b) flows directly into i) a fish stream or a fish-bearing lake or wetland, or ii) a licenced waterworks; *Wetland* – a swamp, marsh bog, or other similar area that supports natural vegetation, that is distinct from adjacent upland areas and is greater than 0.25 ha in size, *Wildlife habitat feature* – a wildlife habitat feature identified under the Government Actions Regulation of the *Forest and Range Practices Act* (FRPA)"; and
- Recommended guidance for specific areas: "Domestic and agricultural wells and water supply intakes (all pesticides and application methods) – 30m NTZ; Community watershed supply intakes (all pesticides and application methods) – 100m upslope NTZ; Water body or stream and identified wildlife habitat features (default condition, to apply in all cases except application of glyphosate as described below) – 10m PFZ; Permanent, non-fish bearing water body; flowing, non-fish-bearing stream; and classified wetlands (wet or dry) – glyphosate selection application (2-10m) and 2m PFZ; Temporary free-standing water body that is not a wildlife habitat feature, non-fish bearing and does not drain directly into a fish bearing water body and *is easily visible to the applicator* – glyphosate (all methods) avoid direct overspray; Temporary free-standing water body that is not a wildlife

habitat feature, non-fish bearing and does not drain directly into a fish bearing water body and *is NOT easily visible to the applicator* – glyphosate (all methods) – no restrictions (i.e., overspray allowed); and Dry S5 or S6 streams not in a community watershed – glyphosate (all methods) no restrictions (i.e., overspray allowed)."

Additional specific comments and recommendations from other respondents included:

- "Overall I am still somewhat disappointed with the heavily restrictive approach to using herbicides in forest vegetation management, primarily in the administrative area of plans and consultations";
- "As long as the result is achieved the method should not be mandatory (but rather optional and up to the professional discretion of the forester), stream PFZs are variable depending on condition – that is, a stream may be wet or dry and the treatment within 10 metres will vary depending on this condition – putting anything besides the stream location on the map would be presumptuous";
- "[Our] main concern over a waterbody requiring protection is the 'Temporary Free Standing Waterbody' which has been given a size of 10 m^2 which is overly restrictive and will be impractical to deal with… they are nearly impossible to identify in heavy brush conditions [alternatively to specifying a size, we recommend] 'easily visible to the applicator'… In addition to this restriction there is also a new clause requiring selective applications from 0-10m from the waterbody – this will make aerial applications virtually impossible in many situations";
- "Define what is 'not directly tributary to a fish stream' by supplying a distance";
- "My understanding of the science is that glyphosate is highly unlikely to leach into streams at all, even if applied directly to a small stream it is quickly immobilized in sediments, and its toxicity to fish at typical applications isn't that high anyway. Therefore the restrictions along direct tributaries to fish bearing waters ar overly restrictive and unnecessary… I would suggest that such restrictions on direct tributaries should only be for the first 30m of the tributary, and in fact all waters within 30m (including sub-tributaries) might be a more defensible approach";
- "There should be one standard for glyphosate application for all industries across [BC], there is no science behind the justification for increasing the PFZs from 5m to 10m for forestry applications";
- "The standards for railways are much less onerous than for forest vegetation management – Why? … forest vegetation management is conducted in much less developed areas (fewer people) and generally uses one of the most benign pesticides (glyphosate) compared with the sterilants used on railways";
- "I am encouraged that applications of glyphosate to within 5m of fish bearing water is recognized as low risk. However, I am intrigued as to why there has been a differentiation for forestry and non-forestry uses, particularly when the only harvesting that can occur 5-10m from fish bearing waters is along S4 streams – these are a very small percentage of the total streams and the area involved is minimal. I would hazard a guess that the non-forestry applications occurring 5-10m from fish bearing waters are many times greater than the area of potential forestry treatment 5-10m from S4 streams";
- "We propose that the size restriction for a water body that can be oversprayed should be enlarged to 100m^2";
- "There is debate around the potential environmental harm posed by glyphosate… it would be appropriate to take a more precautionary approach to the use of this pesticide. The EAB, for example, rule[d] that glyphosate posed a risk to grizzly bears because of its impact on forage for grizzlies. The provisions here for glyphosate do not reflect that decision, nor do they reflect other concerns with this substance";
- "We oppose the reduction of the minimum 10m pesticide-free zone to 1-5m around waterbodies that

are fish-bearing or drain directly into fish bearing waters. Glyphosate is the active ingredient in a commonly used herbicide, Roundup. The product label for Roundup indicates that it is highly toxic to aquatic and terrestrial plants and toxic to aquatic organisms. It further states that a buffer zone of 15m is required between downwind point of direct application and closest edge of sensitive aquatic habitats including sloughs, coulees, ponds, prairie potholes, lakes, rivers, streams, reservoirs and wetlands, and wildlife habitat at the edge of these bodies";

- "[The Intentions Paper] states that dry, non-fish-bearing streams that are not direct tributaries to a fish-bearing water body or stream may be over-sprayed with pesticides – how is 'not-direct tributary' defined? This part of the new regulation could have a major impact on the ability to aerial spray on the coast. Over-spraying of dry, non-fish streams has been permitted on the coast for decades and was only removed (in one region) in 2002. We've been monitoring the downstream contamination of streams over the last two years and found negligible amounts of herbicide following over-spraying – generally less than the maximum level set for glyphosate/AMPA by the Federal Government for aquatic organisms. We did this monitoring under the guidance of Environment Canada. A strict interpretation of 'direct tributary' would eliminate the ability to use aerial spraying on the extensive third growth forests developing on the south coast of BC. Coast-wide, this could cost us millions in increased brushing and weeding costs if all the work must be done by ground crews";
- "Although the intent [of the direction] 'not use herbicides beyond 1.5m if targeted plant species' … is reasonable, this is not practical and enforceable if using backpack foliar application… possibly use 'minimize impact to vegetation beyond 1.5m of targeted plant species'";
- "The requirement for certified individuals to maintain 'technologically unassisted' visual or auditory contact with any un-certified individuals is a new to the proposed regulations. In typical forestry vegetation management in BC the terrain and height of brush can make this practically impossible to comply with during ground-based backpack operations… this new clause is very prescriptive and completely at odds with the forest industry move to a 'results based Legislation'"; and
- "The definition of 'selective application of glyphosate' should include directed foliar application… Recommended definition – 'ground application of a pesticide by hack and squirt, basal bark, wick, cone stem injection, cut stump and directed foliar application applied or directed to: a) a tree or plant competing with a crop tree; or b) an alien invasive plant or noxious weed.'"

2.10. Requirements for Private Forest Landowners

Many respondents expressed their support for the proposal put forward by the Private Forest Landowners Association that forest vegetation management on private lands be administered under a licence, rather than PMP. As well as reviewing the nature of forest vegetation management activities (as discussed in the section above), respondents generally commented that "the changes [proposed by the PFLA] will offer the same level of environmental protection and safety but will reduce the costs resulting from large amounts of paperwork… Replacing broad public consultation with communication with people close to treatment areas and eliminating the costly preparation of very detailed pest management plan makes sense for the forest managers and the government." One organization (BC Landscape & Nursery Association), for example, commented that "forest companies that own their own lands have a strong incentive to maintain the long-term integrity of their property…environmentally sustainable practices deliver the best crops while protecting property values. Significantly increased minimum first time penalties are now large enough to act as a true incentive to comply with the elements of the PFLA proposal. The BCLNA strongly recommends the adoption of the PFLA proposal. It holds sufficient 'due process' to hold private land forest companies sufficiently accountable to the environment, community and government, and it provides an efficient use of resources that will translate into greater stability for the British Columbia

forest industry."

A number of respondents expressed the concern that private forest land owners may be faced with inappropriate and unfair obligations if required to undertake a broad public consultation process for use of forest vegetation management herbicides. For example, one respondent commented that: "the interests who would oppose [herbicide application for freshly logged areas] are those who are against chemical treatments as a matter of principle. Their concerns, so often the focal point of the existing consultation process, should be taken up with regulatory authorities, not with private landowners at public meetings." Several respondents also pointed out that "farmers using pesticides on private land do not need to prepare a Pest Management Plan, carry out consultation or follow many of the restrictions (i.e., pesticide free zones) that are applied when private forest land is treated with herbicides."

Some respondents felt that the direction outlined in the *Intentions Paper*, and the PFLA proposal for managing private forest lands "do not go far enough to protect small private forest owners' rights, balanced against actual, realistic health and environmental risks of private forestry pesticide use." One suggested that "this concept could also be extrapolated to remote forest lands where the risk of human exposure is slight to non-existent and consultative processes to determine First Nation and public interests are repeated periodically via normal forest development planning."

A number of respondents did indicate support for requiring PMP registration for situations where the landowner intends to apply pesticides to more than 20 ha per year. One respondent noted that "given that major pesticide application can occur on these lands over many years, potentially affecting ecosystem and human health… they should be managed with the same long-term, ecosystem focused approach as required by users of crown forest land, and subject to the same public consultation and notice requirements."

Some respondents suggested environmental protection standards that should apply whether the forest land involved is managed under a licence or a PMP. Several respondents also noted that (in keeping with constitutional obligations and in concurrence a recent EAB ruling between Cowichan Tribes and TimberWest) private forest land owners retain a legal obligation to consult with First Nations regarding potential or unjustified infringement of aboriginal rights and title beyond information and notification requirements.

Additional comments or suggestions included:

- "I strongly support the proposed regulation for private forest land – licenced applicators have often been confused in the past about the process for rural residential land, farm land and private forest land – herbicides are necessary to control the xeric brush complex in the interior forests, without them the plantations often fail";
- "Regarding watershed and drinking water source protection, [the regulations should require] that the location of wells is confirmed prior to treatment, the new provincial Drinking Water Officers (DWOs) and/or their delegates are consulted when determining the standards of care when applying pesticides on these lands, and adequate protective notification requirements are outlined through this consultation with the DWOs";
- "The IPM Act clearly indicates that the confirmation of a pesticide use notice is not a government approval – similarly, the legislation needs to clearly indicate that the issuance of a private land forest pest management licence is not a government approval;" and
- "In particular the Tribes object to [the proposition that there be] … no requirement for the applicant to provide detailed site maps showing areas to be excluded for the protection of biodiversity and wildlife (as required under the Forest Practices Code or under the *Forest and Range Practices Act*)."

2.11. Enforcement, Development and Amendment of Regulations and Guidelines

A number of respondents made comments or recommendations regarding enforcement considerations, as well as further development or amendment of regulations and guidelines, including:

- "It is noted that, like the guidelines, many positive regulations including the introduction of qualified monitors, the insurance requirements for licences, the administrative monetary penalties and the need for non-service users who apply pesticides to multi-family dwellings to obtain a licence, will not be introduced at the same time as other regulations. This is unacceptable. We suggest these should be introduced at the same time as other regulations even if it should mean postponing the adoption of all regulations. We feel strongly about this given past experience with promised regulations. In 1997, when PMPs were first adopted, further regulations were supposed to be created to provide detail. These regulations were never drafted. We have little confidence in the effectiveness of piecemeal regulation";
- "It is unclear who will perform the audits and how often – how often will the applicator be required to monitor its pesticide use and how? … It will be important to intermittently measure pesticide concentrations around application sites and track the movement of the pesticides through the environment rather than just ensuring that the pesticides are applied in the manner described in the PMP – it also seems that it would be difficult to audit the applicators if there is no central registry of PMPs";
- "The new scheme raises concerns about enforceability. The vague direction provided by the standards will make the scheme extremely difficult to enforce";
- "An increase in penalty for an individual's first offence from previously $2,000 maximum to $200,000 maximum seems [to be] concentrating on wielding the hammer and collecting fees and fines rather than teaching sound environmental stewardship…Providing sentencing options such as directed services to environmental restoration is more in keeping with rehabilitating the offender. I would suggest aiming some of those fines towards project that acquire and restore sensitive ecosystems such as the Land Conservancy Fund and the Garry Oak Ecosystem Recovery Team, etc."; and
- "Regulation of inter-provincial pesticide sales and/or transport (e.g., from across provincial border with Alberta, or from internet sales) is a very important issue [and the ministry needs to take action to control such activities]."

Appendix 1: Acronyms and Abbreviations

BCLNA	British Columbia Landscape & Nursery Association
Bti	*Bacillus thuringiensis* var. *israeliensis*
Btk	*Bacillus thuringiensis* var. *kurstaki*
DFO	(Canada) Department of Fisheries and Oceans
DWO	Drinking Water Officer
EAB	Environmental Appeal Board
FRPA	*Forest and Range Practices Act*
ha	hectares
IPM	Integrated Pest Management
IPM Act	Integrated Pest Management Act
kg	kilograms
m	metres
m2	square metres
MSDS	Material Safety Data Sheet (prepared for individual pesticides by the manufacturer)
MSMA	Monosodium methane arsonate
MWLAP (the ministry)	Ministry of Water, Land and Air Protection
NGOs	Non-Government Organizations
NIT	Notice of Intent to Treat
NTZ	No Treatment Zone
PCA	(BC) *Pesticide Control Act* (predecessor of *IPM Act*)
PCPA	(Canada) *Pest Control Products Act*
PFLA	Private Forest Landowners Association
PFZ	Pesticide Free Zone
PMP	Pest Management Plan
PMP registrant	Individual, limited company or corporation who holds a PMP registration and who must ensure compliance with the requirements for pesticide use specified by the *IPM Act* Regulations
PMP registration	Confirmation by the ministry of receipt of a pesticide use notice
PMRA	(Canadian federal) Pesticide Management Regulatory Agency